

## Does migration lead to land degradation? How a labour shortage is affecting land management in two selected watersheds in Nepal

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Migration in and from Nepal is high, especially from the mountain and hill regions. While research has focused on the economic and sociocultural effects of migration, much less is known about its effects on land use and management. This study addresses this gap by investigating the links between outmigration, farm labour availability, and land management, using the example of two watersheds in the hill region of Nepal.

The first, Harpan watershed, is located in Kaski district in the Western Development Region of Nepal. The second, Holeri watershed, is located in Rolpa district in the Mid-Western Development Region of Nepal. Both watersheds are approximately the same size (36km<sup>2</sup> and 40km<sup>2</sup>), dominated by forest (Harpan: 70%, Holeri: 41%) and cultivated land (Harpan: 26%, Holeri: 21%). They cover a range of altitudes between 800 and 2500 masl. The Harpan watershed at its outlet is very close (10 km) to Pokhara, the second largest city of Nepal, and has road access and some tourism infrastructure. The Holeri watershed is about 40 km from a main town (Gorahi, Dang District), has road access at the top of the area, and no tourism infrastructure.

We used several methods to achieve the goal of this study. Land degradation and sustainable land management practices were mapped using the WOCAT (World Overview of Conservation Approaches and Technologies) mapping methodology. Remote sensing / GIS methods and field work were used to map the extent of land abandonment. To understand the characteristics of migration and its drivers, we carried out household surveys (Harpan watershed, n=89, Holeri watershed, n=63) and focus group discussions.

Migration throughout Nepal as a whole has increased intensely in the past decade (Sharma, Pandey, Pathak, & Sijapati-Basnett, 2014). Migration patterns have changed, with fewer people moving away seasonally and more migrating for several years, depending on employment contracts. Migration destinations have changed as well: in addition to going to Kathmandu or India, or working as soldiers for the Indian and British army, migrants are heading in large numbers to the Gulf Countries and other countries such as Malaysia. Remittances account for nearly 30% of Nepal's GDP (WB 2013) but the high rate of migration has led to a severe lack of labour.

In both watersheds, about 70% of the households have at least one migrant member. Some of the villages no longer permanently have any men aged between 25 and 35 (e.g. Chisopani village, Harpan watershed), causing women and elderly people to work more. Faced with too high workload, land is often abandoned (often, that furthest away from the house). In the Harpan watershed, 42.9% of the households (n=89) have abandoned land, with lack of labour cited as the main reason by 69% of the households. Women do not decide alone which plots to cultivate and which to abandon: they consult their husbands, and the decision is taken jointly or by the men. In the case of Harpan watershed where roads reach several of the villages in the hills, 56% of the households surveyed (n=25) have left their land in the hills, choosing instead to live in the valley or urban centres for easier access to infrastructure and services. Land use is thus intensified in the valley bottom, including cultivation of flood-prone areas. In contrast, in the case of the Holeri watershed, few families are moving towards the village with road access, and even fewer are moving to the main town (Gorahi), though some families admitted that they would do so once they had saved enough money.

While in the literature land abandonment is widely assumed to increase soil erosion, this was not the case in our watersheds. On the contrary: land abandonment leads to an increase in vegetation cover in the short term, and to a natural increase in forest cover in the longer term, due to favourable ecosystem recovery conditions (high rainfall, fertile land). However, in Holeri watershed where poverty is higher, the number of livestock is increasing, turning cropland into

grazing land. Goat farming in particular is on the rise, with the government and NGOs promoting and giving goats as a measure to combat poverty. This trend is recent, however, and negative effects on the land cannot yet be seen, though a clear lack of vegetation occurs. Other negative impacts of land abandonment include the increase of invasive species and, according to local informants, a decline in soil fertility.

Overall, the question remains how a cultural farming landscape, traditionally characterized by a high input in land management (e.g. terrace maintenance) can be managed sustainably in the face of massive outmigration and local labour shortage.

## References

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